TECHNIQUE EMPLOYED IN THE EXAMINATION OF RODENTS FOR PLAGUE.

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GROUND SQUIRRELS (CITELLUS BEECHEYI).

These rodents are secured by shooting, the hunters employing a 12-gauge shotgun loaded with No. 8 shot. As soon as the rodent is shot it is picked up by the hunter and placed in a specially prepared knapsack container. Either immediately or as soon as practicable thereafter a small portion of chloroform is poured into the container, in order to destroy fleas and other ecto-parasites. At the close of the day the several hunters in a given district convene at a certain point and transfer the rodents to large tin containers, having tight covers, similar to those used by dairymen in the shipment of milk. These cans are then sealed and shipped to the plague laboratory in San Francisco.

Immediately upon receipt of the squirrels at the San Francisco laboratory the cans are opened and filled with either bichloride or a solution of one of the phenol compounds, for the purpose of destroying any ecto-parasites that may have escaped the chloroform, as well as the disinfection of blood or other body fluids that may have escaped from the rodents. When this fluid has been allowed to act for a reasonable length of time the laboratory attendants, wearing gowns, rubber aprons, and rubber gloves, remove the rodents from the shipping cans and tack the four feet to a shingle in such a position that the animal's body will be fully stretched with the abdominal surface uppermost.

The animal thus stretched, together with the board, is then placed upon the dissecting table and an incision is made for the full length of the anterior aspect of the animal's body, and from this incision lateral incisions are carried to the skin over to the distal ends of the four limbs. The dissector then lays back the skin on the rodent, exposing to view the subcutaneous tissues over the whole anterior aspect of the body. The bacteriologist having charge of this work then inspects carefully the exposed area, especially noting any injection of vessels, enlargement of glands, collections of pus, or areas of focal necrosis. If any such suspicious appearances are met with a microscopical examination of stained smears from the animal is employed as an assistance to the diagnosis. The necropsy then proceeds in the usual way—the abdomen is opened by an incision through the tissue in the median line, from the lower end of the sternum to the symphysis pubis, and lateral releasing incisions carried from this line at right angles, severing the abdominal muscles; the abdominal cavity is then inspected, special attention being given to the spleen and the liver, the most common site of lesions in plague infection of these animals. Besides this any other abnormality is noted and investigated by means of stained microscopical smears.

An incision is next made through the diaphragm, and the blade of the scissors inserted through this into the plural cavity and by means of this instrument the anterior chest wall is removed, to permit of inspection of the thoracic organs; here, as in the abdomen, the dissec-

tor searches for small white nodules (areas of focal necrosis), collections of pus in large mediastinal glands, etc., using the microscope as an assistance when it appears necessary.

At the conclusion of the necropsy the bacteriologist in charge of this work decides whether, in his opinion, the indications of plague infection in a given animal are sufficiently strong to justify the inoculation of a guinea pig. If he decides that such is the case, the abdomen of a guinea pig is shaved without injury to the skin, and one of the suspicious lesions found in the squirrel is excised and thoroughly rubbed over the surface of the shaved abdomen of the guinea pig.

If the guinea pig dies as a result of the inoculation, of a plague-like infection, cultures are made from the heart blood of the animal, and these cultures, when pure, are carried through cultural tests.

From the evidence obtained by necropsy, microscopical examination, animal inoculation, and cultural tests, the bacteriologist having charge of this work decides whether the squirrel in question was or was not infected with plague.

RATS.

The procedure employed in the handling of these rodents differs only in the means of procuring them; that is, they are trapped, chloroformed to destroy ectoparasites, and brought immediately to the laboratory, where they are examined in the manner just described.